Chapter One
SYSTEM PERFORMANCE CRITERIA

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Overview

This chapter is the first in a series of technical chapters that document the Pima Association of Governments (PAG) Regional Aviation System Plan (RASP) update. The RASP was last updated in 1995, prior to this document. This report provides a comprehensive assessment focusing on aviation conditions in Pima County over the past six years.

While the FAA updates its National Plan of Integrated Airport Systems (NPIAS) constantly, the complete document is published every other year. State and regional system plans, such as the PAG RASP, are used to develop NPIAS recommendations. Airports must be recognized in the NPIAS to be eligible for FAA funding. The FAA draws money for eligible airport development projects from the Airport Improvement Program (AIP). Recommendations from this RASP will feed into both the NPIAS and the Arizona Department of Transportation (ADOT) State Aviation Needs Study (SANS).

Plan Purpose, Process, and Public Involvement

The Pima Association of Governments Regional Aviation System Plan, or RASP, provides a 30-year outlook for the airport, aviation, and air transportation needs of Pima County. The RASP is an update of a previous regional plan that was completed and adopted in 1995. System plans examine airports on a macro level. The RASP provides a general assessment of aviation needs within the System and serves as a blueprint for future airport master planning undertaken for airports in the Regional System.

This update reflects changes that have occurred in the Regional Aviation System since the completion of the prior RASP. This RASP update used recent socioeconomic data from Census 2000 and data from other recent regional plans such as the 2025 Regional Transportation Plan to capture current regional conditions. Most projects identified in the prior RASP had been completed, and individual airport Master Plans updated. New airports became part of the Regional Aviation System, and other System airports had ownership changes. Updating the RASP is important because it is the RASP that provides a vehicle that enables Federally eligible airports in the PAG System to take full advantage of grant dollars available from the Federal Aviation Administration (FAA).

The RASP was accomplished using a performance-based approach. This approach is consistent with that used for evaluating other regional modes of transportation. This type of approach also provides

the underpinning for a sustainable planning process. The performance-based methodology used to conduct the update to the RASP was tied to goals for the Regional Aviation System. System goals used in the RASP were initially adopted from those used in the prior RASP; these prior goals were updated, expanded, and modified using input from the RASP Task Force that was established to guide the development of the RASP.

The RASP was conducted in a series of separate, but related, technical steps. The first step in the analysis is to establish System goals. Once goals for the System are identified, they are translated into performance measures, which are subsequently used to evaluate the adequacy of the Regional Aviation System. To facilitate the evaluation process, benchmarks, specific to each performance measure, are employed. The RASP identified System goals that were translated into System performance measures and also identified benchmarks for each performance measure. This process provides the foundation for a "report card" that will ultimately be used in the RASP to determine how well the Regional Aviation System is currently performing. For the RASP analysis, the performance measures are reflective of the categories in which the Regional Aviation System will be evaluated, while the benchmarks are the actual tests that will be used in each category to determine the System's adequacy.

The planning process was also supported by extensive public outreach. The cornerstone of this outreach process was the RASP Task Force. The Task Force was established at the onset of the Study and worked jointly with the consulting team and PAG during the preparation of the RASP. The Study Task Force, consisting of about 20 representatives, was comprised of individuals from airport and aviation interests in Pima County, citizen and military representatives, ADOT, PAG, and the FAA. The Task Force met five times during the 12-month Study. In addition to input and direction supplied by the Task Force, four project newsletters were also prepared and distributed to several hundred individuals. The mailing list for the newsletter included local elected officials, community and business leaders, and airport businesses and users. Briefings to PAG committees and the Regional Planning Council were also provided, as were supplemental meetings with individual airports and their respective user groups. Two public open houses were held on December 5, 2001, and April 23, 2002, to discuss the RASP and its findings. Approximately 70 individuals attended these two open houses; information on each open house was provided via direct mailings and through newspaper advertisements. The Aviation page of the PAG website provided the public with ongoing information on the RASP update. Finally, PAG routinely solicits public input on the development of short-range and long-range transportation plans, both of which include aviation projects.

The remainder of this chapter is devoted to describing System goals, performance measures, and benchmarks for the RASP.

System Goals

Communities continue to recognize the importance of an airport system to their regional economic and transportation infrastructures. The need to plan for an efficient and effective collection of airports is essential to the aviation system planning process. The first step in the RASP was to identify specific goals for the aviation system that serves Pima County.

Using Federal and State objectives, input from the prior RASP, and local input from PAG staff and the Study Task Force, six goals for the Regional Aviation System were identified and adopted for use in the RASP. These goals are:

- Provide a Regional Aviation System that has ample capacity to accommodate demand;
- Promote a Regional Aviation System that complies with applicable ADOT and FAA standards;
- Encourage a Regional Aviation System that supports economic growth and diversification;
- Support a Regional Aviation System that is compatible with the human and natural environment, while maintaining flexibility to respond to changes in future demand;
- Identify a Regional Aviation System with development matched to its financial capabilities; and
- Maintain a Regional Aviation System that provides reasonable access from both the ground and the air.

These six goals for the airport system that serves Pima County and its immediate environs were then translated into performance measures for the Regional Aviation System. As previously noted, the performance measures are the categories that will be used in the RASP to evaluate the System's adequacy. The following performance measures were considered for the PAG RASP:

- Capacity
- Standards
- Economic Support
- Compatibility
- Financial Responsibility
- Accessibility

Each of these six performance measures is discussed in the following sections of this chapter. In addition, the specific benchmarks that will be used for each of the performance measures to test the System's adequacies and deficiencies are also noted.

Capacity

Capacity is important to the efficiency that characterizes a good aviation system. An airport's ability to process operational demand is influenced by many factors. In the FAA's advisory circular on capacity (AC 150.5060-5), the FAA recognizes that, as demand begins to saturate an airport's operational capacity, delays to planes on the ground and in the air increase. FAA guidelines indicate that an airport should begin planning for some measure of resolve when its demand reaches 60 percent of its calculated annual operating capacity. The planned capacity-enhancing measures should be implemented if demand reaches 80 percent of capacity.

Airfield facilities, which influence an airport's operational capacity, are not the only indicators of a system's ability to provide sufficient capacity. Adequate landside facilities should also be available to satisfy existing and forecast demand levels. For the PAG RASP, System airports will ultimately be reviewed for their ability to meet Study facility objectives as they relate to hangars, aircraft aprons, auto parking, and terminal/administration space. Generally speaking, based aircraft and annual operational demand levels are the components that drive the need for various landside facilities.

Capacity-related benchmarks that were used to evaluate the adequacy of the Regional Aviation System include the following:

- Percent of System airports, by category, that operate at 60 percent or more of their annual operational capacity (ASV) (current, 2015, and 2030);
- Percent of Region, its population, and business centers within a 30-minute drive time of a System airport exceeding 60 percent demand/capacity (current, 2015, and 2030);
- Percent of System airports, by category, operating at 80 percent or more of their annual operational capacity (ASV) (current, 2015, and 2030);
- Percent of Region, its population, and business centers within a 30-minute drive time of a System airport exceeding 80 percent demand/capacity (current, 2015, and 2030);
- Percent of System airports, by category, with a hangar waiting list (ratio of total storage spaces available to number of aircraft on waiting list); and
- Percent of System airports, by category, whose auto parking facilities are matched to demand.

Standards

Airport development standards are established by the FAA and, in some cases, ADOT. These standards are established to ensure that airports are planned and developed to meet the operational characteristics of the types of planes that most frequently operate at each airport. Systemwide airport compliance with applicable standards is maintained as part of the master planning process. Any proposed airfield improvement that is eligible for Federal funding undergoes detailed and rigorous FAA review before it is approved.

The FAA has standards for a number of surfaces around an airport that should be clear from all, or certain, types of development. In particular, the FAA has a number of standards applicable to the areas underlying the approach to each active runway end. The area off each runway end, which should be free of obstructions, is referred to as the Runway Protection Zone (RPZ). The FAA details as part of FAR Part 77, the areas around each airport that should be free of objects violating specific height restrictions. The FAA, in cooperation with the U.S. Department of Defense, is also in charge of governing airspace. Throughout the U.S., many airports share airspace; the FAA is the agency charged with ensuring that airports in proximity to one another can operate with minimal airspace restrictions.

The FAA also sets standards to ensure that operational areas at airports are developed to meet the requirements of the most demanding aircraft operating at each airport on a regular basis. ADOT, through its planning efforts for the State Airport System, has also established standards for maintaining pavements at Arizona airports to their optimum level. These and other standards will be used to evaluate the adequacy of the Regional Aviation System.

The following benchmarks have been identified to evaluate the Regional Aviation System's ability to meet standards:

- Percent of System airports, by category, with runway and taxiway separations that meet their current FAA Airport Reference Code (ARC);
- Percent of System airports, by category, that have runway safety areas (RSAs) on their primary runway that meet the standards set by their current ARC;
- Percent of System airports that meet the ADOT standard for having a pavement condition index (PCI) of 80 or greater on their primary runway;
- Percent of System airports that have shared airspace resulting in operating restrictions; and
- Percent of System airports with obstructions that affect their approach minimums.

Economic Support

Air transportation is important to an area's economic infrastructure; employers consider the existence and efficiency of air transportation facilities when expanding or developing in a given geographic area.

Tucson International Airport meets Pima County's scheduled commercial airline needs. The general adequacy of the Region's scheduled commercial air service, to support business- and tourist-related travel activities, can be evaluated by comparing the Region's current commercial air service characteristics to those that existed at the time of the prior RASP.

Reliever airports and general aviation airports often accommodate business and corporate aviation users. The use of these non-commercial airports is important to economic growth and diversification. Business and corporate use of general aviation aircraft, fueled by fractional ownership, represents the highest growth component in the general aviation industry. It is important for the Region to have an adequate airport system to meet the needs of businesses as they increasingly turn toward general aviation to broaden their markets and improve their efficiency.

Specific benchmarks that were used to evaluate the System's adequacy, as it relates to the economic performance measure, include the following:

- The number of top origination and destination (O&D) markets with nonstop scheduled commercial airline service (1995 and current);

- Number of average weekly scheduled airline seats departing Tucson (1995 and current);
- Average one-way commercial airline fare for the U.S. and for Tucson International (1995 and current);
- Percent of System airports that support a Part 135 operator;
- Percent of Region, its population, and business centers within 30 minutes of a System airport with a Part 135 operator;
- Percent of System airports accommodating air cargo activity; and
- Percent of the Region and its population and business centers within a 30-minute drive time of an airport with a runway at least 5,000 feet in length.

Compatibility

The FAA recognizes and stresses the importance of planning for the nation's airport system. The identification of future airport development needs is important to ensuring that an airport system is adequate to meet future demand levels. It is important for airports to understand and identify local issues, and to maintain good relationships with their host communities. Proactive land use planning provides a mechanism for minimizing adverse airport-related impacts in airport environs.

The FAA and Department of Housing and Urban Development (HUD) have developed standards that delineate specific types of land uses compatible or incompatible with certain levels of cumulative noise exposure. Generally speaking, all noise-sensitive land uses should be discouraged in areas in proximity to an airport's operational area or its flight tracks. Further, development of objects around airports that pose a hazard to navigation from the standpoint of the height of these objects should also be restricted through active planning and zoning initiatives. Planning and zoning to implement appropriate land use controls represent the best mechanisms for promoting compatibility in the airport environs, in terms of minimizing potential impacts and increasing flexibility to respond to longer-term needs.

Airports protected from the encroachment of incompatible activities or land uses with their day-to-day operations and activities have a greater potential for needed future expansion. Proper planning on, and around, system airports increases the flexibility of that system to respond to both foreseen and unforeseen development needs.

Specific benchmarks that were used to evaluate the adequacy of the System, as it relates to the compatibility performance measure, include the following:

- Percent of System airports that have worked with surrounding municipalities to adopt height zoning based on FAR Part 77 guidelines;
- Percent of System airports recognized in their local comprehensive plans and/or regional vision statement;

- Percent of System airports with a current airport master plan or ALP update;
- Percent of System airports with a current noise contour; and
- Percent of System airports that comply with ADOT guidelines for having an "Airport Influence Area Map" and public disclosure.

Financial Responsibility

Airports draw funds for their operation and maintenance costs primarily from revenue generated from the activities that take place at the airport. When new development projects are needed, or the airport is in need of equipment, some system airports can apply to ADOT or FAA for grants to meet their identified and approved needs. Airport revenue streams may still be required to support the "local" share of investment costs required to leverage State and Federal grant money. Many general aviation airports do not operate at a profit, but instead often rely on their sponsor or owner to contribute to the cost of operation and supply the local match needed to secure ADOT or FAA grants.

Only airports included in the National Plan of Integrated Airport Systems (NPIAS) are eligible to compete for grants from the FAA. In most cases, airports in the NPIAS are publicly owned. Privately owned airports are generally not eligible for inclusion in the NPIAS; there are, however, some exceptions to this rule. Once an airport accepts a Federal grant, it becomes obligated to remain open as an airport for the next 20 years. Because privately owned airports are typically not able to secure Federal grants for development and because they are not obligated to remain operational, the longer-term viability of privately owned system airports can sometimes be at risk.

As part of the last reauthorization of the Airport Improvement Program (AIP), general aviation airports in the NPIAS became eligible, for the first time, for entitlement funding of up to $150,000 per year for a three-year period. To be eligible for these entitlement funds, however, airports need to have projects identified in the NPIAS that meet or exceed this level of funding. Recommendations in the NPIAS generally come from regional and state airport system plans, such as the PAG RASP. Development needs identified in the RASP for System airports will be fed into the NPIAS.

It is important to identify what practices have been implemented on the airport-specific level to promote responsible financial practices, to ensure that the Regional Aviation System is intact to meet the Region's long-term air travel needs. Benchmarks that were used to evaluate the adequacy of the System's financial responsibility include the following:

- Percent of System airports employing full-time, on-site staff;
- Percent of the regional population within a 30-minute drive time of a privately owned System airport;
- Percent of System airports with completed business/financial plans;

- Percent of System airports with a local public owner that contributes to annual operating/ maintenance costs and local share of capital development projects;
- Percent of System airports that have recently updated their rates and charges;
- Percent of System airports that have had a recent land appraisal; and
- Percent of System airports with published minimum standards and operating procedures.

Accessibility

The FAA notes the need for aviation facilities within the NPIAS, to be within reasonable access times of those who are expected to use each airport on a regular basis. The system must be accessible from both the ground and the air for an airport system to satisfy the accessibility performance measure.

The typical FAA standard for drive times to non-commercial airports is 30 minutes. This standard will be used in the RASP to identify the percent of the Region, its population, and its major business centers that are within a 30-minute drive time of a System airport. Accessibility to airports that provide coverage for a full range of the corporate/business general aviation fleet is also an important characteristic of an accessible airport system. Business users of general aviation airports and "high end" general aviation users requiring access to the Region's many resort and recreational facilities have special needs for both facilities and services.

Conversely, it is also important that facilities be available in the Metropolitan Area to accommodate sport and special-use aviation activities. Access to regional aviation facilities via alternative transportation modes (such as transit) may provide one avenue for ensuring adequate ground access.

Accessibility to airports from the air is increased by the presence of landing systems that enable aircraft to locate system airports during periods of reduced visibility. System airports with a precision approach offer the highest degree of accessibility. Airports with a non-precision approach also provide a higher degree of accessibility from the air than do airports that are served only by a visual approach.

Benchmarks to evaluate the ability of the Regional Aviation System to provide adequate ground and air access include the following:

- Percent of the Region, its population, and its major business centers within a 30-minute drive time of a System airport capable of accommodating business jets;
- Percent of the Region/regional population/regional business centers within a 30-minute drive time of a System airport;
- Percent of the Region/regional population/regional business centers within a 30-minute drive time of a System airport with a precision approach;

- Percent of the Region/regional population/regional business centers within a 30-minute drive time of a System airport with a non-precision approach;

- Percent of the Region/regional population/regional business centers within a 30-minute drive time of a System airport accommodating "special-use" aviation;

- Percent of System airports served by public transportation; and

- Percent of System airports with intermodal transfer capabilities.

These performance measures and benchmarks will be used to provide a report card for the Regional Aviation System in subsequent portions of the PAG RASP. This report card will reveal current System adequacies and deficiencies, as well as potential surpluses or duplications in the System. As later portions of the RASP analysis are undertaken, the results of the evaluation will be used to formulate System recommendations.